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The Air Line Pilot

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THE NEWARK STORY

Federal vs. Municipal Air Traffic Control

The Newark Story

Can airports remain open, can the pilots continue to operate safely without exclusive federal control over inter-state air carrier traffic?

When Captain George Neuhauser stepped off the airliner he had landed at LaGuardia Airport on July 23, 1949, the official arm of New York's Police Department handed him a summons. Captain Neuhauser, said New York City, had violated a city ordinance. He was ordered to appear in Magistrate Court.

Basis for the action was the anti-noise approach and departure pattern set up for LaGuardia, Newark, and Washington National Airports and incorporated into the Civil Air Regulations in March of that year. Among the City's laws was an ordinance giving New York Police authority to arrest any pilot who violated a CAR. And Captain Neuhauser, said the Police Department, had violated the anti-noise pattern regulation.

The case of New York vs. Captain Neuhauser had, under a thin veneer of pilot vs. city, a controversy of deeper importance:

—Do states and municipalities have the authority to regulate interstate air traffic, an authority assumed to be in the exclusive hands of the federal government?

If Cities Could Regulate the laws governing air transportation, ALPA contended, no pilot was free of the possibility of being arrested and fined indiscriminately. If New York could legislate traffic patterns, other cities could do the same, and there would be no limit to the control city laws could exercise over air traffic. The airline industry could conceivably be legislated out of business by municipalities; or pilots forced to compromise safety in the operation of their aircraft to comply with the ordinance.

Captain Neuhauser's battle turned out to be his and ALPA's alone. CAA contended it could not intervene, since, as far as it was concerned, Neuhauser had not violated any Civil Air Regulation. On March 13, 1950, after more than eight months in court, Captain Neuhauser was acquitted. But the constitutionality of the ordinance had not been tested. The question of whether municipalities could control air traffic was left unsettled.

The problem burst forth again on February 11, 1952, when, following the third of the Elizabeth tragedies, public demand forced the New York Port Authority to close Newark Airport. Again, a municipality had exerted control over air traffic.

Behind the action:

—On December 16, 1951, a Miami Airlines Curtis Commando with four crewmen and 52 passengers failed on take-off and skidded onto the bank of the Elizabeth River. All 56 aboard died.

—On January 22, 1952, an American Airlines Convair 240 with three crewmen and 20 passengers crashed while letting down toward Newark Airport. One wing sliced into a three-story building, spinning the plane into a two-family frame house. Seven residents of Elizabeth were among the total of 30 dead.

—On February 11, 1952, a National Airlines DC-6, less than two minutes after departure, plunged into an Elizabeth apartment house, 31 dead were taken from the debris.

The hysteria created by the series of crashes was understandable. But, is hysteria an equitable reason for closing an airport?

Facts:

—In no way could the airport operation be blamed for having caused any of the three crashes.

—Newark Airport compared favorably with many others in the U. S, and was one of the best equipped. It had an unblemished safety record of 25 years.

Reporting on the causes of the three tragedies, CAB said:

—Miami Airlines: ". . . probable cause . . . was a stall with landing gear extended following a serious loss of power from the right engine. The loss of power was caused by failure of the hold-down studs of the No. 10 cylinder, precipitating a fire in flight which became uncontrollable . . ."

—American Airlines: ". . . there is insufficient evidence available at this time upon which to predicate a probable cause . . ."

—National Airlines: ". . . feathering of No. 4 engine with No. 3 operating in reverse pitch would adversely affect performance, resulting in a high rate of descent. (Investigators commented that had the aircraft been equipped with reverse pitch indicating lights in the cockpit, the malfunctioning propeller could have been readily identified and undoubtedly would *not* have been feathered. Reverse pitch indicating lights have been sought by ALPA.)

Experience and facts indicated Newark should stay open. Yet public hysteria screamed, "Close Newark," and hysteria won out.

Commented TIME Magazine: ". . . In a sense, all this had happened before. The automobile, the subway, the railroads had all been castigated as menaces to the community. As late as

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W. Johnston, Editor

1941, trains were not allowed to move along the New York Central freight tracks on Manhattan's West Side unless they were preceded by a horseman who carried a flag by day and a red lantern by night . . ."

Like a Pistol under a tight suit coat, there was, and has always been behind a city's attempt to regulate air traffic, the public's fear of aircraft—a fear created by the noise airplanes make. The public makes little distinction between aircraft noise and aircraft crashes. It is understandable that Elizabeth residents, after three fatal crashes in their area, would have a greatly inflated fear of aircraft noise. But the questions remain: Should the airport have been permitted to be closed and, should a municipality be allowed to close the airport without public hearings?

If so, where does the municipal power stop. Could not municipalities legislate against air traffic upon any basis without giving facts a fair test? Could politics close an airport arbitrarily, depriving thousands of people of jobs, of air service, or of essential airports for national defense?

Out of the Chaos created by the Elizabeth tragedies sprung the National Air Transport coordinating Committee, with the task of directing the efforts of civil aviation toward a solution. The importance attached to the work of NATCC is indicated by its membership: The CAB Chairman, CAA Administrator, ALPA President, Chairman of the New York Port Authority, Chief Executives of the cer-

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NATCC New York Area Recommendations

—Use of the preferential runway system.

—Scheduling of training flights out of the congested metropolitan region.

—Giving pilots end-of-the-runway weather information. In addition to normal weather data, pilots now given details of weather conditions they can expect as they come in for touch-down.

—Keeping a continuous record of communications between pilots and tower operators. Previously, only messages from the tower to the pilot were recorded.

—Implementing new holding procedures. When aircraft are holding under instrument conditions they follow a standard separation, vertically and horizontally. Now traffic holding above the overcast holds the same positions as if under instrument conditions.

—Runway changes and improvements. At LaGuardia, the top priority runway was rebuilt, sending flights out over Flushing Bay, the Old Fair Grounds, Riker's Island Channel, and the East River. At Idlewild, another runway, adjacent to Jamaica Bay was opened.

—Engine run-ups confined to areas which provide a maximum dissipation of noise.

—New York Port Authority assigned to install means of trapping ground noise as soon as experiments can produce adequate devices.

President's Airport Commission Recommendations

—New airports are needed; present airports must be improved. State, county, and municipal governments should assume a fair share of the expenses.

—Federal-aid to airports program should be expanded with highest priority going to runway extension.

—Airports should be a part of community planning with particular attention given to transportation facilities leading to airports to reduce enroute time from the source of air transport business to the terminal.

—Airports should be certified under the Civil Aeronautics Act with specific terms stipulated under which the airport should be operated. If minimum safety standards were not maintained, certificates should be revoked. Closing of an airport should occur only if it is clearly in the public interest.

—Dominant runways of new airports should have cleared extension at each end of at least one-half mile; 1,000 feet wide.

—A fan-shaped zone, beyond the extension, at least two miles long and 6,000 feet wide should be established at the outer limits of new airports. In this area, the height of buildings and the use of the land should be controlled to eliminate the erection of places of assembly.

—At existing airports, cleared areas and zoned runway approaches recommended for new airports should be developed.

—The authority of federal, state and municipal governments regarding air-space should be clarified.

—The limits of navigable air-space for glide path or take-off patterns should be defined.

—Air traffic control zones with excessive traffic should have special regulations.

—Minimum ceilings and visibilities under which aircraft are permitted to circle under the overcast should be raised.

—More liberal cross-wind landing and take-off specifications for each transport-type aircraft should be established.

—Cross-wind landing gears should be developed and used.

—New airports should adopt the single or parallel runway design. For use under strong wind conditions there should be a shorter runway 90 degrees to the main ones.

—Runways should be brought up to standard length. For inter- or trans-continental operation, the length should be 8,400 feet with the possibility of expansion to 10,000.

—Speed up the installation of aids to navigation, with priority to adequate manning of radar traffic control systems.

—Engine run-up schedules and locations should be adjusted to minimize noise near airports.

—There should be tight discipline regarding approach and departure procedures to minimize noise.

—Airways and flight patterns should be arranged to avoid flight over thickly populated areas.

—Flight crew training should be conducted away from metropolitan areas.

—Training maneuvers of military aircraft should be restricted to open areas.

—Military aircraft should not be based on congested civil airports.

—Flight crews should have frequent drills in instrument and emergency procedures.

—Civil helicopter development for inter-airport shuttle services should be encouraged.

—Test flights should be minimized near highly populated areas.

—Training maneuvers of military aircraft should be restricted to open areas.

—Military aircraft should not be based on congested civil airports.

—Flight crews should have frequent drills in instrument and emergency procedures.

—Civil helicopter development for inter-airport shuttle service should be encouraged.

Ditching

The loss of life due to ditching points to an immediate re-evaluation of current ditching procedures

Since 1949 only two of the six water landings by airliners have been successful. In both instances the ditchings were near rescue facilities. The box score on the other four—169 lost; 89 saved—indicates a desperate need for the re-evaluation of current ditching regulations.

Within the past few months, ALPA has:

—Named Captain John Burn, PAA, as Association representative on the industry committee studying emergency ditching procedures.

—Succeeded in having placed on the agenda for review at the next Air Worthiness session of the Bureau of Safety Regulation the subject, "survival after ditching."

First Official Tussle of the Association with ditching regulations appeared in late 1948, when it came out with Air Safety Recommendation 257. The Recommendation was concerned with regulations covering operations over bodies of water where flight would be outside the gliding distance from land —Great Lakes, New York Bay, San Francisco Bay. It asked that all two-engine aircraft on such flights be required to have (1) A life belt for each passenger and crew member, and (2) An adequate signal device, such as a very pistol.

Said ALPA: "The airlines are operating many such trips each day. Sooner or later an airplane is going to be ditched. Without some means of keeping them afloat, some airline passengers are going to drown . . ."

The CAB's Bureau of Regulation, however, shook its official head, reasoning that since no such fatal ditching had occurred to date, new regulations were not needed.

Replied ALPA: ". . . we would both be at a loss for words if and when a plane-load of passengers ditches and there are passengers drowned who could have been saved . . ."

The problem, like a hot potato, has been tossed back and forth since, with re-evaluation of ditching regulations being put off until some undetermined future date.

This Year, two ditchings occurred which may force new regulations from civil aviation authorities. On January 19, a Northwest Airlines DC-4 attempted an emergency landing at Sandspit Airport and ditched at the end of the runway. Thirty-six persons drowned.

Three months later 52 passengers died when a Pan American DC-4 ditched five miles off San Juan.

It was at the CAB Investigation of the Sandspit crash that ALPA's pleas for changes in the regulations gained ground. The Association's representatives there listed the following recommendations:

—Life rafts should be located so they can be jettisoned into the water from a compartment opening from the outside of the aircraft.

—A line should connect life rafts and aircraft so rafts cannot float away.

—The line should be attached to air bottles so that pressure of the line will release the air and inflate the rafts automatically.

—Rafts should be placed on both sides of the aircraft in the event that evacuation is impossible from either side.

—Spark proof flashlights should be placed over emergency exits and doors and should be turned on manually by flight attendant upon take-off and landing.

Of Much Importance at the hearing was the testimony of Lt. Donald Baker, one of seven survivors of the Sandspit ditching. Lt. Baker's review of the accident—before and after—pointed up the logic of the ALPA recommendations.

Following the actual crash, said Lt. Baker, ". . . the pilots were engaged in trying to remove the life raft through the top hatch . . . the copilot said the rope he had was attached to the raft. We tugged but to no avail. So with what rope there was the copilot tied the rope around his shoulders and went back inside the aircraft to try to dislodge it (the raft) or get it out the side exit . . .

"The copilot went back in and was under for about 15 or 20 seconds and came back out. He evidently felt it was useless to try because of the size of the raft . . ."

Lt. Baker said the airplane gradually settled and it became apparent that survival on top of the aircraft was impossible. The top was about a foot and a half under water and the waves were sufficient to wash people off the plane.

The testimony of suvivors indicated that few, if any, of the passengers were hurt in the actual landing. The cause of death was apparently the unavailability of light and life rafts.

The Immediate Problem appears to be: "What can be done *now* to insure survival after ditching?"

Ditching itself cannot be eliminated. Over-water flights are here to stay. And over land, if a pilot has to make a choice between bringing a crippled plane down on rough terrain or on water, he will undoubtedly choose the comparatively "soft" water.

Acceptance of ALPA Recommendations would help. And after further study, the Association has added other recommendations for the present and future.

At Present:

—Put literature in passengers' seats or decals on cabin walls explaining ditching procedures.

—Brief passengers before they board the plane for long over-water flights.

—Place posters in air line terminals illustrating the use of life jackets, life rafts, and their location in planes.

—Train flight attendants to recognize emergencies without having to be alerted by the flight crew.

In the Future:

—Design seat upholstery so it can be used as a life preserver which is easily fastened to the body.

—Install a remote manually operated switch which will eject life rafts without their having to be handled by the crew.

—Design a flotation means into airframes. Explore a means of lightening the plane swiftly to aid flotation, such as releasing engines and landing gear (possibly in a similar manner as the Military now releases bombs).

—Find a faster method of dumping fuel, and a way of closing fuel dump valves after dumping so that compartment becomes an air cell.

Another feature for the future would be the adaption of exposure clothing. Life rafts and life jackets are not insurance against death by exposure even if the evacuation after ditching is successful.

Flight Fatigue and Ventilation:

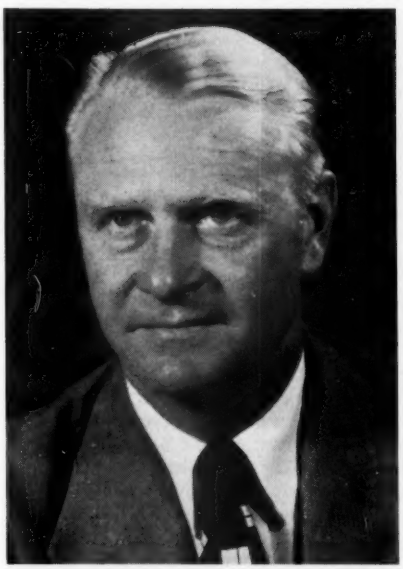
Captain Vernon A. Peterson, EAL, Council 51, attended the National Aeronautics Meeting and Technical Air Review of the Society of Automotive Engineers held in New York, April 21, 1952. On these pages are Captain Peterson's remarks to SAE members:

The air line pilot is vitally and intimately concerned with the elimination of fatigue and the utilization of his own and his crew's best talent in order to conduct a safe operation in today's commercial air transports. For the past several years, a considerable number of air line pilots have spent 800 to 1,000 hours a year in pressurized cabins with the result that considerable operational experience has accumulated. We like the flexibility it gives us; we like the freedom of being able to make rapid climbs and descents without the ear and sinus discomforts usually associated with the older unpressurized aircraft; we enjoy the new-found ability to fly over the bumpy air of the lower levels, over much of the icing weather, and over much—but not all—of the bad weather. The advantages of refrigeration both on the ground and in the air are greatly appreciated.

An early, and incidentally a continuing, impression of the pressurized cabin was that the fatigue we felt during and after a flight was different in nature and was greater than we had been accustomed to. We have been trying to find out why this is so.

A number of possible causes for this unusual fatigue have been advanced among which are: vibration, noise level, low humidity, increased tension of flying faster equipment, aging of pilot personnel, and ventilation.

Ventilation appeared an unlikely factor at first because there seemed to be plenty of movement of air. However, in 1949, pilots asked that air in pressurized cabins be sampled during flight and tested for purity. The rate of ventilation was calculated from the amount of carbon dioxide found to be present in the air. In one type of aircraft, a number of values of four to six cubic feet per minute per person of air change were found. The design called for a greater rate of air change than this so a maintenance problem was indicated. Shortly after this, maintenance procedures were set up for testing the ductwork under pressure,



Vernon A. Peterson

and for overhauling the various components of the pressurization system. After this was done, conditions improved.

At that time, CAA regulations were to the effect that pressurized cabins should be ventilated, but no rate was specified. Consequently, even a four to six cubic feet per minute of air rate of change per person in the aircraft complied with the regulations.

Air Circulation (which we apparently had plenty of) did not always mean we were getting ventilation. In certain types of aircraft, recirculating fans had fooled us into believing everything was all right until our fatigue told us otherwise. Some pilots who went back to flying unpressurized equipment remarked that they felt better; others began to fly at lower levels where they could keep the cabin altitude around 5,000 feet or below; others gave up smoking and advised their crews to do likewise. Many complaints came from pilots who flew in aircraft in which cockpit heating was possible only with recirculated air.

The most likely explanation for pilots behavior and comment can be found in a chapter entitled, "Carbon Monoxide," in a book, *Human Factors in Air Transport Design,* by Dr. Ross McFarland of the Harvard School of Public Health.

Facts brought out in this chapter are that cigarette smoke contains a significant amount of carbon monoxide; and that carbon monoxide increases the pilot's physiological altitude over the cabin altitude. Dr. McFarland points out that at 6,000 feet with .005 per cent of carbon monoxide the pilot's physiological altitude will be about 12,000 feet. At 9,000 feet with the same amount of carbon monoxide, it becomes almost 15,000 feet. Dr. McFarland also brings out the fact that the combined effect of carbon monoxide and anoxia can be very large. Also, carbon monoxide is not eliminated rapidly from the blood and tissues and this fact may explain the cumulative aspects of the fatigue. We believe smoking in flight contributes materially to the fatigue experienced and have started an educational campaign to make pilots aware of this fact. In March, an article entitled, "Smoking in Flight," was published in our Association publication *(The Air Line Pilot,* March, Page 6). We believe that breathing air contaminated by the cigarette smoke of passengers also contributes materially to our fatigue.

Our Experience indicates that too little attention has been paid to supplying fresh air to the pilot's compartment of certain airplanes. In this connection, the use of recirculated air does not constitute ventilation. As we understand it, ventilation means the replacement of foul and used air by

(Continued on Page 13)

About Captain Peterson

—Born January 28, 1908, Albert Lea, Minnesota.
—Graduated University of Minnesota, School of Business Administration, 1930.
—Graduated Navy Flight Training School, Pensacola, Florida, 1931.
—Served with Second Marine Air Wing, 1942-45.
—Joined Eastern Airlines 1935.
—ALPA offices: Copilot Representative; Councilman; Council Chairman; Master Chairman.

Airways---Present and Future

The following address was delivered, May 12, 1952, by Charles F. Horne, Administrator of Civil Aeronautics, at the National Conference on Airborne Electronics:

I would like to discuss with you some aspects of the CAA plan for establishing and operating the Common System of Air Navigation and Traffic Control for the Federal Airways. The Common System—as its name implies—is a system of air navigation and traffic control that will be used in common by all users of the airspace. It is not the result of any unilateral action on the part of CAA. Far from it. The plans were not developed by the CAA alone, or by just the Government agencies interested in aviation. The plans were not presented to the aviation industry and to the military on a take-it-or-leave-it basis! On the contrary, they were forged by aviation itself, with each segment and special interest represented in the give and take of the conference table.

What is the Common System?

Soon after the end of World War II it became apparent that the low medium frequency navigation system and the existing systems of aeronautical communications and air traffic control were obsolescent and could not meet the future operational requirements of aviation. In 1947, the Radio Technical Commission for Aeronautics established Special Committee 31 to "undertake a study of Air Traffic Control for the purpose of developing recommendations for the safe control of expanding air traffic." Government agencies, military and civil, trade associations, radio manufacturers, airlines and pilot groups were represented on Special Committee 31.

Special Committee 31 found it had a most difficult task to perform. It seemed that every phase of aviation has special needs and requirements; and as a result each placed special emphasis on its own problems. Certainly it is easy to understand that the problems of a small plane owner are very different from those of the Military Air Transport Service, and the requirements of a fighter pilot do not necessarily resemble those of a scheduled airline pilot. But, SC-31 came up with some conclusions!

The SC-31 report does not attempt to resolve the navigation and communications problems peculiar to tactical military aircraft operations, but it does provide for the navigational, air traffic control and communications requirements of civil and military non-tactical air operations.

In January of 1950, the Air Traffic Control and Navigation Panel of the Air Coordinating Committee established a special working group to review the SC-31 report and all other papers which dealt with the Common System.

Special Working Group Five was composed of representatives of the Government, both military and civil, the Air Line Pilots Association, the Air Transport Association, and the Airport Operators Council.

The SWIG-5, Report, as we call it, is a blueprint for the integration of air traffic control operations within the United States. This report has added new impetus to the work which is underway, and new assurance to people who are planning for the future. Prepared as it was, by everyone concerned with aviation, the SWIG-5 report points up the fact that the Common System concept is more necessary to us, and more strongly endorsed by users than ever before.

It is obvious that we will be denied the necessary time, in case of an immediate declaration of war, to build a new and improved air transportation system within the United States. If war should come, and we all sincerely hope that a peaceful means can be found to resolve our international difficulties, it would have to be fought by using whatever air navigation and traffic control system is in operation at the moment. Because the establishment of the Common System represents a form of mutually agreed National Defense insurance, it has the full and unqualified support of the United States military as well as civil interests.

The benefits of the Common System are of a rather tangible and specific nature. Its benefits to the airlines, for example, can be measured in substantially increasing passenger and cargo business.

Its benefits to the taxpayer will be measured by the reduction in the cost of maintaining and operating multiple systems of air navigation and the ultimate reduction in the "subsidy" payments made to scheduled air carriers.

So much for the justification of the Common System. Now, what are we doing about getting the system into use?

A Transition Program — a program that will raise aviation from its World War II status to the Common System plane—has been developed. This discussion will concern itself with a description of this Transition Program.

Basically the Transition Program converts our navigation system to a system which provides the pilot with continuous information as to his position in space, utilizes radar as a terminal aid and traffic control facility in congested areas, provides direct communication between the pilot and the air route traffic controller and utilizes electronic and electro-mechanical techniques for the display and relay of information.

The keystone of the air navigation system of the immediate future is the very high frequency omni directional radio range—the omnirange. This facility will replace the low/medium frequency 4-course radio range which has been in use for the past 20 odd years.

A comparison of this omnirange with the 4-course range clearly indicates the superiority of the omni. (1) The omnirange operates in a static-free portion of the radio spectrum, 112-118 Mc, thus making range reception possible during periods of thunderstorms and atmospheric disturbances. (2) The pilot using the obsolescent 4-course range is required to silten continuously to a monotonous series of dots and dashes; omnirange course indication is displayed in the cockpit on a visual meter which immediately shows the pilot whether he is on course or whether he is to the left or right of his course. (3) To eliminate the possibility of dangerous confusion between quadrants, the pilot flying the old type 4-course range must fly a complex time-consuming orientation pattern. (4) Instead of being limited to four courses, as is the case with the L/MF range, the omni provides the pilot with an infinite number of tracks of courses

radiating from the range station, providing navigational guidance throughout 360° of azimuth. Cross checks or readings on two or more facilities may be used by pilots for fixing purposes.

The CAA Expects to operate a total of approximately 500 omniranges, of which 438 have been programmed through Fiscal Year 1952. Of these, 350 have been commissioned at this time. The remainder in the program are either operating on test, to be commissioned shortly or are under construction. It is anticipated that the CAA enroute omnirange program will be substantially completed by September 30, 1952.

In the terminal area, the CAA is installing the Instrument Landing System, which provides lateral and vertical guidance to aircraft making approaches to high traffic density airports during periods of low visibility.

The ILS uses ground transmitters located at the airport to project two radio beams into space. The localizer operates in the 108-112 Mc band and is directed down the runway out into the approach zone and provides lateral guidance to aircraft approaching the airport, keeping the aircraft on an electronic track over the runway centerline extended. The glide path operates in the 328.6-335.4 Mc band and controls the plane's rate of descent and vertical angle of approach.

Our current Airway Planning Standards indicate that there is a requirement for approximately 180 Instrument Landing Systems at the major terminal airports in the United States. At the present time, the CAA is operating 98 Instrument Landing Systems, and, in addition, 70 are in various stages of survey, construction, final installation, and testing.

The recent development of a low-powered terminal omnirange will provide aviation with a flexible terminal aid incorporating many of the advantages of both the omnirange and the ILS localizer. Evaluation tests, now underway, appear to justify the contention that the omnirange can be utilized as a low approach terminal aid as well as an enroute facility. We shall install this terminal omni at low traffic density locations which do not justify the expenditures required for a full ILS.

Besides the electronic equipment I have described, there is a requirement for visual aids in the terminal area. These aids include High Intensity Runway Lights, Runway and Taxiway Marking, Taxiway Lighting, Traffic Control Lights and Markings, and High Intensity Approach Lights. With the exception of the Traffic Control Lights and Marking, all of the equipments required for the visual aids portion of the program have been developed and are available for procurement.

Problems of Configuration and standards still plague the implementing agencies, but it is hoped that these can be resolved in short order. The CAA High Intensity Approach Lighting Program is now getting underway. Twenty installations have been commissioned and 12 additional are in some stage of construction.

The ILS and omnirange provide the pilot with track information but do not provide a ready means for pin-pointing a pilot's geographical position.

Distance Measuring Equipment has been developed to furnish the necessary additional factor. At each omnirange station and at each Instrument Landing System, there will be installed a Distance Measuring Equipment transmitter. The Distance Measuring Equipment, known as DME, operates in the 1000 Mc band, utilizes radar pulse techniques developed during World War II and measures the time interval for a radar pulse to travel from the aircraft to the ground beacon and return to the aircraft. Therefore, in a suitably equipped plane, the pilot will get his azimuth or direction from the omni or ILS and his distance from these facilities by means of the DME. Since the omni and ILS are located at fixed geographical points, the pilot now has both distance and direction and therefore can accurately determine his position in space.

A Test VOR/DME airway has been implemented between Chicago and New York. DME has been installed with the VOR's at Chicago Heights, Goshen, Toledo, Cleveland, Youngstown, Phillipsburg, Selinsgrove, Allentown and Caldwell, New Jersey. The ILS installations at Chicago and New York are also being equipped with DME. The CAA evaluation of this airway will be completed by August of 1952, during which time procedures for the use of VOR/DME will be developed to ensure maximum utilization of these aids to traffic control and navigation. After this evaluation, a number of the available airborne sets will be turned over to civil and military users to acquaint them with the value of VOR/DME operation along an established airway. Thirty-one units of airborne equipment have been procured and will be allocated to Air Force and Navy aircraft, airline aircraft, and to CAA flight inspection aircraft. These units, through the cooperation of industry and the military, will assist us in evaluating VOR/DME operational procedures.

CAA's Horne

The CAA has awarded a contract for the production of 450 DME's. This equipment is now coming off the line with 38 delivered to date and the delivery scheduled will soon reach 40 units per month until the total of 450 has been delivered.

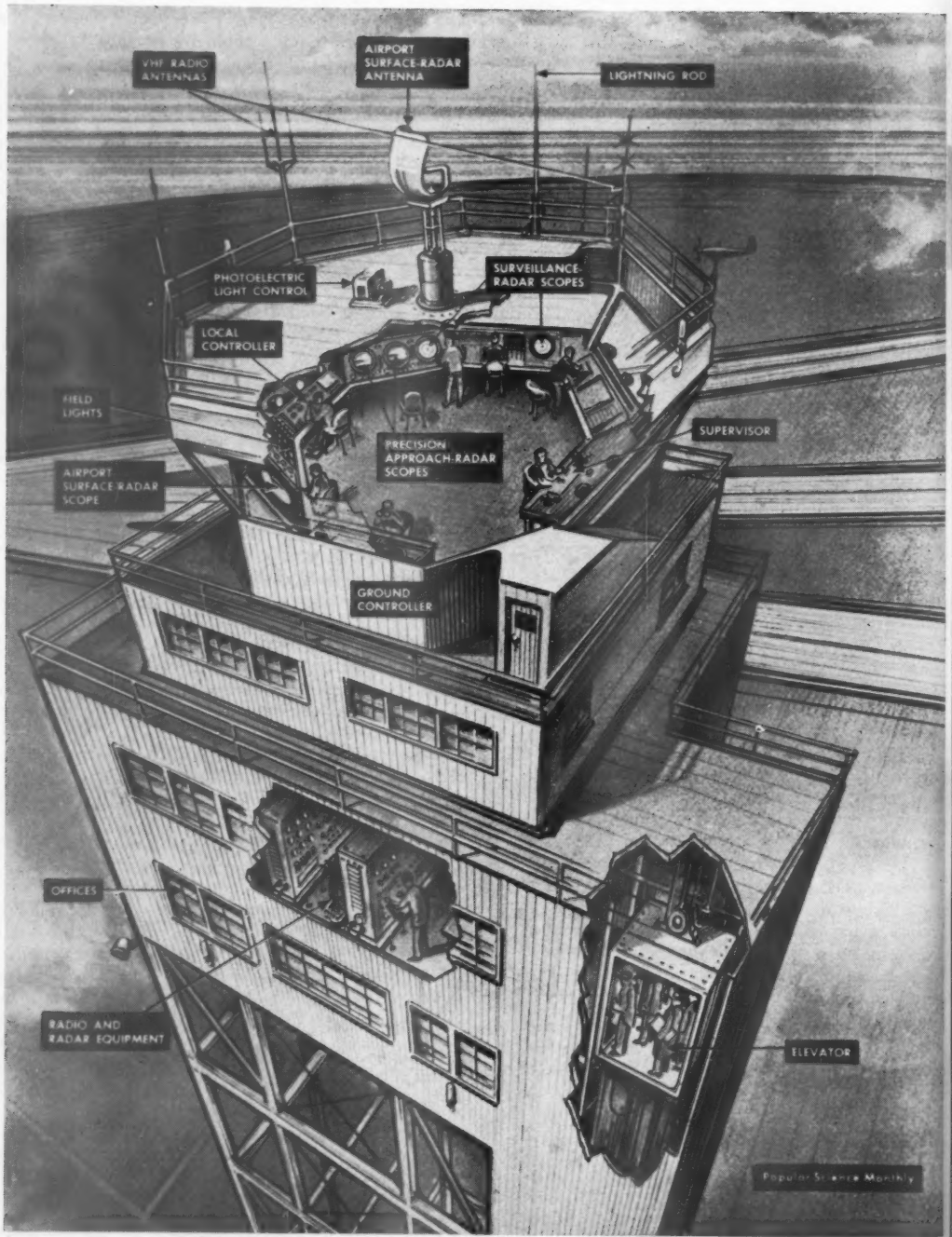
Coordinated with the development of the omnirange and the DME has been the development of the Course Line Computer. This Computer introduces additional flexibility to the omnirange — DME combination. The Course Line Computer, a lightweight airborne electronic device, makes it unnecessary to fly directly to or from an omnirange. Using the Computer, DME, and the omni, a pilot can fly a straight course between any two selected points under the umbrella of omnirange coverage. The pilot sets certain information into the Computer, then the Computer, using intelligence received from the DME and the omnirange trasmitter, continuously solves the navigation problem involved. All the pilot has to do to stay on his preselected course is to keep his vertical needle centered just as he does in flying radially to or from an omnirange.

Modified and Improved equipments of the war developed terminal radar devices have been incorporated in the Common System. The radar devices known during the war as GCA, Ground Controlled Approach, have been modified for civil operation, and split into two specific equipments: the Airport Surveillance Radar and the Precision Approach Radar.

The Airport Surveillance Radar — the ASR — acts as the eyes of the airport traffic controller on a Plan Position Indicator the location of all

(Continued on Page 14)

Camera



Control tower for Idlewild. This 11-story tower nearing completion at New York's Idlewild Airport carries a heavy amount of radar and radio equipment. Tower is designed to direct 1,000 landings and take-offs a day.

Captain E. F. Sloan, Seattle, Council 55, PAA pilot, stands by his homemade "Sloan Special" which won him first prize in a national automobile show. Captain Sloan built the car at his home, in the basement, at a cost of approximately $6,000. It is built on a 1940 Ford frame, houses a set-back 1950 Cadillac engine which transmits some 175 horsepower through a Ford transmission with Lincoln gears to a two-speed Columbia rear axle. It has fenders adapted from a 1950 Buick, windshield from a 1941 convertible Ford, and a radiator grill from the rear window of a 1935 Ford sedan. The custom-built roadster can do better than 110 M.P.H.

President Truman's Airport Commission reported May 16, and recommended many changes for the aviation industry (See The Newark Story, page 2). Seated (left to right): Dr. Jerome C. Hunsaker; Truman; and General James Doolittle, chairman. Standing (left to right): Charles Horne, CAA Chairman; Major General Robert Landry, Presidential Air Force Aide; and Paul Johnston, Executive Secretary of the Commission.

News

Nyrop on Jets

Donald W. Nyrop, Chairman, Civil Aeronautics Board, testified before the Senate Committee on Interstate and Foreign Commerce recently regarding bills S. 2344, S. 481, S. 1402 and S. 477. The bills, Nyrop pointed out, are similar in that each encourages the development of new civil transport aircraft types through governmental financial assistance. The CAB Chairman presented the Board's proposal to step-up progress on the development of a commercial jet transport.

The Plan: Any qualified aircraft manfacturer would be eligible for a government loan equal to 75 per cent of the total estimated development cost of a jet transport. No loan would exceed $15,000,000. CAB would pass on economic suitability of prototype before it authorized the loan. *CAB would underwrite an airline service test in cargo and mail service for 12 months.*

Information gained would be available to all U. S. airlines, U. S. manufacturers, the CAA and CAB. The service test would attempt to achieve a minimum of 2,000 hours in the 12-month period.

"The need for an immediate evaluation of the situation with respect to our international carriers is made urgent by the development of jet transport aircraft in Great Britain," Nyrop said. He warned that if U. S. manufacturers do not provide a suitable jet plane, competition may compel U. S. carriers to go abroad for equipment. At present, manufacturers say the market for jet transports does not appear sufficiently extensive to support the cost of their developing and producing such aircraft themselves.

Local Service Carriers came in for a share of comment by the CAB Chairman. The current fleet of local service carriers—with one exception—is made up entirely of DC-3 aircraft. DC-3s (first manufactured in 1935) will soon reach the retirement age. Nyrop urged an immediate project to develop a suitable local service plane. During the past several months, he said, the 16 local service airlines have been considering methods of securing an adequate replacement for the DC-3. The Committee reports that U. S. manufacturers, loaded with a backlog of military orders, are not in a position to go ahead with the development.

The Committee inferred that local service carriers may be forced to go to foreign markets to get their DC-3 replacement.

Many ALPA Labor Provisions In Braniff/Mid-Continent Merger Given Nod by CAB

Only four months after the filing of the application for a merger of Braniff and Mid-Continent Airlines, CAB approved the plans and agreed that many of ALPA's proposed labor provisions be made a condition of approval.

The decision also allows ALPA to use its machinery for the integration of seniority lists.

ALPA suggested labor protective provisions adopted:

—Employee continued in service will not receive less compensation than received prior to merger date.

—Employee displaced within three years (ALPA asked five years) of merger date will be compensated with a monthly sum equal to the previous year, for a four-year period (ALPA asked five years), unless salary status reaches amount of whole compensation figure again.

—Employee deprived of employment given dismissal allowance based on length of service; equal to 60 per cent of average monthly compensation during previous year (ALPA asked 100 per cent) (see box).

—Employee will not be deprived, during protective period, of benefits (hospitalization, etc.) attached to previous employment.

—Employee entitled to dismissal allowance may resign and accept separation allowance (see box).

—Moves brought on by merger within three years: Company must pay expenses including traveling, loss of wages, two working days to secure new location.

—Losses due to sale of homes, contracts to purchase homes, cancellation of leases, within three years, borne by Company.

—Provision for arbitration of disputes which might arise under merger.

Representatives of both pilot groups began work May 28, 1952, on integration of the seniority lists.

BRANIFF/MID-CONTINENT MERGER COMPENSATION

Dismissed Employee		Resigned Employee	
Service	Duration of Payment	Service	Amount of Payment
1 year—less than 2	6 months	1 years—less than 2	3 months pay
2 year—less than 3	12 months	2 year—less than 3	6 months pay
3 year—less than 5	18 months	3 year—less than 5	9 months pay
5 year—less than 10	36 months	5 years and more	12 months pay
10 year—less than 15	48 months		
15 years and more	60 months		

ICAO Dictionary

An English, French, and Spanish aeronautical dictionary, compiling international civil aviation terms, has been prepared by the International Civil Aviation Organization. Dictionary attempts to clear up misunderstandings of 2,500 commonly used terms in the three languages.

AOPA Nixes New Alphabet

The Aircraft Owners and Pilots Association followed ALPA's lead this month by refusing to use the new phonetic alphabet developed by the International Civil Aviation Organization.

Said AOPA's Assistant General Manager, in a letter to CAA: "The facts now indicate quite clearly that the new phonetic alphabet, presumably adopted in the interest of safety and clarity, has had exactly the opposite effect."

AOPA pointed out that the situation which now exists, pilots using the old alphabet and ground stations using the new, is confusing and dangerous. The group asked, "in the interest of safety" that the CAA abandon use of the new alphabet and restore use of the old.

Knots and Nautical Miles

The Civil Aeronautics Board, June 4, 1952, decided, by a three to two vote, not to put into effect proposed regulations which would convert units of measurement for speed and distance in civil air transportation from statute miles to knots and nautical miles.

As a result of the evidence introduced at the oral argument by various representatives of civil aviation, the military establishments, and the Civil Aeronautics Administration, the Board decided that there is insufficient justification at this time to warrant adoption of the proposed changes. The Board said many elements of the aviation industry expressed strong opposi-

tion to changing from the statute mile system, to which they had long been accustomed, and that the arguments against the change charged that the conversion would be not only an unnecessary burden, but would introduce some degree of hazard into private and commercial air operations.

The Board said that it recognized the necessity for a standard system at some future time, but there would be no significant adverse effects on air safety involved in the use of separate systems by military and civil operations under the presently-used system of air traffic control and communications.

New Landing Aid

Instrument Landing System (ILS), used to guide aircraft to landings at major airports, will have new dual transmitters installed by the Civil Aeronautics Administration.

New glide slope transmitters are being installed as rapidly as equipment is received from the manufacturer. New transmitters, installed in duplicate to provide standby service, will replace war surplus transmitters at the 98 domestic airports now served by ILS. They also will be installed at about 75 additional airports where ILS is scheduled.

Associated antenna and new transmitters are designed to avoid any change in the glide slope angle caused by snow on the ground, changes in the water table, etc. They will increase the usable range of the glide slope from 10 to about 30 miles, and provide more precise on-and-off-course guidance.

An improved monitoring system is being installed with the new transmitters. Independent receivers continuously sample the output of the transmitter. If it changes in path width, path angle, or signal level, red lights flash and bells ring in the control tower. The traffic controller can then immediately switch to the standby transmitter.

Cost of the new electronics equipment: approximately $7,500 for each location.

Horne Addresses Mayors

In a recent address to the U. S. Conference of Mayors held in New York, CAA Administrator Charles F. Horne discussed safety gains made over the last two decades by the air line industry and the relationship of aviation to our overall economy. Horne credited pilots, the air lines, the CAA, and the CAB for the advances.

"Despite the headlines," Horne said, "the airplane is actually a very safe vehicle, both for people it carries and the people on the ground."

Statistics: In 1950, the latest year for which figures have been published, 17,600 people were killed riding in automobiles and taxis compared with 96 on air lines. Taking into account the greater mileage for motor travel, the death rate was twice as high as it was for air line passengers. Automobiles, in 1950, killed 10,000 people who were *not* passengers, compared with only three fatalities for non-riders in airplane accidents.

Horne Told The Mayors: "I am sure none of you would seriously consider banning motor traffic in your city, or arbitrarily restricting the operation of automobiles to days when the streets were not wet . . . You approach the problem of regulation calmly and cooly, imposing only such rules as are clearly in the public interest.

"Aviation asks only the same treatment."

The accidents which occurred in Elizabeth and Jamaica recently, Horne said, were not part of a pattern on which any sensible course of action could be based—they were exceptions to a notably good record.

The Administrator pointed out that civil aviation is no longer a luxury, but an indispensable element in the nation's economy. Last year, 23 million passengers rode domestic air lines and the majority of trips were for business reasons.

A Memo on Wills

The lack of knowledge concerning the necessity of a properly executed will is fairly wide-spread. Ownership of property normally carries with it a desire that it be distributed upon death to those considered most deserving by the owner. However, the majority of individuals have never executed a will, or, once having drawn up such a document, have failed to keep it adapted to their current needs.

In the absence of a properly executed will, real property descends directly to the heirs. Generally, (depending upon individual state laws) where a wife and children survive, one-third will go to the wife and two-thirds to the children. If the children are minors, it may be impossible for the wife to sell or lease the property without resorting to court procedure. This may impose considerable hardship upon dependents whose financial condition calls for an early disposition of the estate's assets.

It is extremely important that a will, once executed, be reviewed from time to time so that it will conform with the current financial or marital status. Marriage or divorce may have considerable effect upon a previously executed will. Either might possibly result in a complete or partial revocation.

Important also is a continuing review of life insurance coverage. Often, it is discovered upon the death of an insured person that the beneficiary has died previous to the insured, and that no change in beneficiary has been made. Occasionally there is a failure to designate an alternative beneficiary, causing hardship to dependent children in case of both the insured and beneficiary dying at the same time. In such a case one of the purposes for which the insurance has been carried to assure liquidity of the estate, is defeated.

American Aviation Cites 10

American Aviation (June 23, 1952) has published its list of the 10 "top pilots" of 1951. Nominations were submitted by the individual airlines and the ALPA.

Pilots cited:

Walter Jensen: "American Airlines' Captain Walter Jensen has made major contributions to this (radar in traffic control) critical field."

J. B. LeClaire: ". . . served TWA and the industry in the sound developmental work to which he made con-

(Continued on Page 12)

In Memoriam

Walter H. Carroll

of United Airlines, died of a heart attack on May 23, 1952.

Charles M. Taylor

of Bonanza Airlines, on active leave with U. S. Navy, died when Douglas Skyraider in which he was making simulated night carrier landings crashed June 3, 1952.

Carlos C. W. Bonham, Jr.

of Hawaiian Airlines died when an F-47 he was piloting during training exercises collided with another fighter.

tributions during his company's early operations with Martin 202 and 404 aircraft . . . he guided efforts to make 404 a 'pilot's airplane.' "

George P. Cullen: ". . . designed . . . a single-sheet manifest with well-arranged blocks for entry of critical data and simple means of arriving at a final determination of center-of-gravity limits."

H. O. Coleman: ". . . Coleman's willingness to carry on these flights seeding low flying clouds and fog areas to clear airport for bad weather landings) under critical weather conditions provided another chance for the industry to obtain the latest word on what can be done about the weather . . ."

Cecil Darnell: ". . . initiated and coordinated a program to assure that his airline's (Braniff) R-2800 engines were operated to their peak performance. . . ."

W. W. Moss: ". . . personifies a group of pilots who carry their piloting experience into the meetings and discussions where the future trend of air safety is determined . . ."

Don Alldredge: "One of the acknowledged shortcomings of the air transport industry has been its failure to put across its message of accomplishments to the public. Empire's Don Alldredge has made valuable inroads in this field . . ."

Paul F. Untersee: ". . . designed . . . a sliding scale computer to establish relationships of visibility and ceiling under which the pilot may make an approach . . ."

Arthur F. ("Red") Foster: "One of the toughest public relations problems . . . in recent months has been centered in the New York area. . . . Foster, elected N. Y. representative for Air Line Pilots Association, has been ably representing the airlines, as well as pilots and aviation in general, by actively working with the various protesting civic groups, as well as with the Rickenbacker committee and Port of New York Authority.

Clifford L. Stout: ". . . brought about several changes in the Company's (California Central) Martin 202 aircraft. . . . A three-quarter inch extension on the VHF NAV switch . . . makes it possible to have 'touch' identification of this control, minimizing possibility of confusion with other nearby control switches, even in darkened cockpit . . ."

***The Air Line Pilot* welcomes comment on its editorial content**

As a Matter of Fact

By Ronald L. Oakman

What Happens to the Pilots?

That master of paradox, G. K. Chesterton, once said, "Travel narrows a person," and though this is the opposite of what most people believe, it is true that every time we step out of the room these days, we miss a couple of acts. The first pilot to take a rocket trip to the moon will come back to a vastly different air line picture here on earth if the rate of change keeps on at the pace presently being followed.

Mid-West Airlines, for example, whose certificate was recently denied renewal by the CAB was scheduled for demise as of July 1 of this year and though many people expected them to appeal this decision, they requested an earlier dissolution than the Board had ordered. By way of contrast, Piedmont Aviation recently became the first local service line ever to get a certificate for more than five years duration when the CAB recently renewed the line for a seven year period.

In Name If Not In Fact, this coming and going of air lines is paralleled in the recent flurry of merger activity and though many mergers are pending, it would be foolhardy to forecast the picture that will ultimately emerge from the present scramble. The Northwest-Capital merger, which the CAB long regarded as a natural and to which they gave speedy handling once it was formally requested, failed in gaining stockholders' approval, and it now seems definite that Northwest will not renew its request for this consolidation of routes. On the other hand, the Braniff-Mid-Continent merger which was sprung on the air line world out of the blue, so to speak, is already well on its way towards completion. The Colonial-National merger which also failed at the stockholder level will hardly be attempted again, yet it now looks as though Eastern might take over where National left off. The Empire-West Coast merger now has preliminary approval by the CAB Examiner and the Delta-C & S hand-holding technique is gathering momentum.

In all of these successful and unsuccessful merger proposals, pilots' jobs, pilots' working conditions, pilots' security and pay are at stake. Alert to the impact that such drastic route changes have on the lives of its members, ALPA has played an active, aggressive role in all the CAB hearings and as a result of continual effort, the labor protective provisions finally written into the Braniff-Mid-Continent CAB approval docket are the best that have ever been obtained. Written down and spelled out so that all who read may understand, are guarantees against loss of income to pilots and other employees for a period of four years after this merger takes place. This was not luck but a lesson learned from experience. The management of Braniff Airways has assured the pilots and the CAB that no harm to them can result from this merger, that, on the other hand, only benefits can be forseen.

Similarly, in the sale of Route 68 by Western Air Lines to United Air Lines back in 1947, the president of Western Air Lines assured both the pilots and the CAB that no harm to the pilots would result from this sale. As a matter of fact, it was stated and restated that more pilots would be needed rather than less. The facts disclosed later, however, that 23 air line pilots were furloughed as a direct result of the sale of this segment of Western Air Lines and to this day redress is being sought for financial loss to those pilots during 1947, 1948, and 1949.

In Other Changes in the structure of the air line transport industry the air line pilots immediately concerned have, on the whole, been lucky. The pilots on Mid-West Airlines, which no longer exists, have all found work with other air lines, many with the expanding Wisconsin Central. Monarch and Challenger, who merged to form Frontier Airlines in 1949, have expanded and now employ 88 pilots compared to a total of 57 on both air lines prior to the merger. The Pan American-AOA merger, which looked bad for the pilots at the time just prior to its approval by the CAB due to the furloughing of 144 Pan American pilots, has taken on softer tones due to the tremendous expansion of PAA's overall passenger business and though sharp overtones are still being heard from this area due to the difficulty of merging the two seniority rosters satisfactorily, expanding economic conditions have helped somewhat in easing this situation.

The merging of air lines is like travelling in a jet—a little of its goes a long way—and though so far, pilots displaced as a result of juggled management have been held to a minimum, and these few absorbed by expansion, it can be readily seen that wholesale merging of air lines would result in a vastly different story. In all air line mergers, interchange, and trackage agreements, ALPA is interested primarily in the one question—"What happens to the pilots?"—and the cornerstone—just the cornerstone—of the ultimate answer to this question has been laid in this most recent CAB approval of the Braniff-Mid-Continent merger.

Air Line Pilots Association Federal Credit Union Financial and Satistical Report May 31, 1952

BALANCE SHEET

Assets

	May, 1952
Loans (556)	$303,401.04
Cash	92,305.91
U. S. Bonds	213,660.95
Furniture & Fixtures	2,030.15
Prepaid Expense & Misc.	688.46
Total	$612,086.51

Liabilities

Shares	$591,613.64
Reserve for Bad Loans	8,797.71
Undivided Profits	4,421.91
Profit	7,047.23
Accounts Payable	206.02
Total	$612,086.51

STATEMENT OF INCOME & EXPENSE (Year to Date 1952)

Income

	May, 1952
Interest on Loans	$ 3,001.03
Investment Income	
Other Income	.07
Total	$ 3,001.10

Expenses

Employer's FOAB	$ 12.78
Other Salaries	1,128.53
Office Supplies	242.82
Educational Exp.	2.98
Loan Insurance	233.91
ALPA Reimbursement	
Depreciation	54.25
Legal & Coll. Exp.	6.67
Postage	21.41
Misc.	973.70
Total	$ 2,677.25
Net Profit	$ 323.85

Statistical Information

	May, 1952
Number of Members	2,097
Number of Potential Members	9,798
Loans made since Organization (Number)	1,749
Loans made since Organization (Amount)	$1,144,180.32

Ventilation . . .

fresh, clean, outdoor air. We feel that reasonable ventilation standards should be established and written into the CAA Regulations at the earliest possible time. This matter is urgent for we have seen aircraft placed in service in a configuration which carries 45 passengers—a short time later it is changed to carry 60—and later again, 75 or 80, all with the same pressurizing system.

In our estimation, reasonable standards for crew compartment ventilation should specify a rate of flow of air and its purity. The rate of air flow should be at least 30 cubic feet per minute per person of fresh air properly heated for comfort with controllable outlets so that direct drafts will not be noticeable. No part of this 30 cubic feet per minute should be recirculated air; it should all be fresh and direct from the compressor.

The aircraft should be equipped with a device to show what the rate of ventilation actually is, and to provide a continuous recording of the performance of the system. This continuous recording would provide a means of telling when the system needs maintenance and if it is being operated and controlled properly in flight. Also, the pilot wants to know how high he can fly and still have a reasonable rate of ventilation in case he is called upon to conduct the flight with only one blower or one supercharger operating.

Air in the pilot's compartment should be pure. The maximum allowable carbon monoxide should be related to altitude and duration of the flight. We believe a value of .002 of a per cent should be the maximum for flights of 4 hours or less of duration at cabin altitudes of 5,000 feet or below. For flights of over 4 hours duration, or of shorter duration, if conducted above 5,000 feet cabin altitude, the maximum should be .001 of a per cent. While we welcome research by competent medical authority on this subject, at present we feel the values quoted here should be the maximum allowable in the crew compartment of commercial air transports.

The Flow of Air should be from the front to the rear of the airplane to facilitate smoke removal in case of fire.

On the matter of removing odors, we believe the best way to carry them away is by using plenty of good, fresh, outdoor air. The poorest way to cope with odor is to perfume the air or to dull the occupant's sense of smell with sprays or deodorants of various sorts. Precipitating smoke particles and dust from recirculated air would help to maintain the purity and would eliminate the stale and rancid odors which sometimes emanate from the collections of smoke particles and tars in the various recirculating ducts.

The air line pilots believe that the interests of safety demand that pressurized aircraft be designed and maintained to conform to reasonable standards of ventilation.

Newark . . .

tificated and non-scheduled air transport operators, private and corporation aircraft owners, aircraft manufacturers, and airport operators. Eastern Airlines President, Eddie Rickenbacker, was named NATCC Chairman.

Wisely, NATCC did not take a public-be-damned attitude. It did not try to correct the federal vs. municipal rights controversy in the midst of the hysteria. The Committee announced as its first steps, reducing operations into LaGuardia caused by the shifting of traffic from Newark, and diverting the suddenly increased volume away from populated metropolitan areas.

Although the Committee had no legal authority, it did have the promised full cooperation of its members, representing all of the aviation industry. As a result of NATCC urging: The Military agreed to minimize miscellaneous operations into New York area airports. Private and corporation owners agreed to use other airports exclusively. International carriers transferred all operations from LaGuardia to Idlewild. Domestic carriers scheduled as many flights as was possible into airports other than LaGuardia; and cancelled all trips which could not be re-scheduled. The non-scheduled carriers agreed not to increase services into LaGuardia.

A measure of extreme importance—one completely dependent upon the cooperation of pilots—was the implementation of the preferential runway system. A pilot calling the tower for a taxi clearance found a new phrase in the tower operator's reply: "Preferential runway is ————."

The Goal of the system was to point planes on take-off away from the populated areas. In suggesting a preferential runway, tower operators considered wind direction and velocity, dryness and braking efficiency of the runway, possible hazards edging the runway, and possible hazards in the flight path. The pilot's final authority in runway selection was preserved.

Under the new system, a preferential runway is considered one headed within 80 degrees on either side of the direction of the prevailing wind, providing the velocity does not exceed 15 mph. The system is limited to VFR conditions (1,000 foot ceiling; three-mile visibility).

Runways are selected on a priority basis, with the runway pointing out over the least populated area taking No. 1 priority. Example: Runway 31, with an initial climb over the East River, has top priority at LaGuardia. Second priority goes to Runway 13, with take-off over Flushing Meadow. Runway 4, with flight over the East River, has No. 3 priority. Runway 22, which heads a plane over Jackson Heights, has the lowest rating.

The preferential runway system, however, should be recognized for what it is: A stop-gap method of easing public hysteria. It should not be taken as the "easy out" should other airports be in danger of closure. Any plan which restricts a pilot's freedom to operate his aircraft as he considers best is a detriment to operational safety.

Another NATCC action was the curtailment of civil aviation training

flights over the New York area. They were moved into less populated regions.

The results of NATCC's stop-gap action were impressive. During the week of November 19, 1951, not using the preferential runway system, 465 flights out of LaGuardia used Runway 22 over Jackson Heights. During the week of February 23, 1952, using the preferential runway system, out of 1,979 take-offs, only one was made from Runway 22.

Between 1,200 and 1,500 training flights from LaGuardia and approximately 1,000 from Idlewild ceased.

Residents Had Long Objected to the noise created by aircraft. Previous to the crashes, they had had no real basis upon which to demand the closing—they had moved to the airport, the airport had not moved to them—but now they could plead that their homes were in danger, and find many an understandably sympathetic ear.

The noise factor made a considerable bulge in the resident's mantle of indignation. NATCC recognized the under-the-surface pleas for less noise and when it gave its recommendations (See Box) for airport operation in the New York area two of the eight points were concerned with that problem. Point seven called for engine run-ups to be confined to areas which provided a maximum dissipation of sound. Point eight assigned the New York Port Authority to install means of trapping ground noise as soon as experiments could produce adequate devices. The Committee's program was released May 15, 1952, slightly over three months after the third fatal crash.

The Investigations and resulting recommendations were not all made by NATCC. The rank of those forced to involve themselves with the Elizabeth tragedies reached the top. On February 20, 1952, President Truman named a personal commission to study airport operation. The President's Airport Commission was headed by James Doolittle and had as its members, Charles Horne, CAA Administrator, and Dr. Jerome C. Hunsaker, Head, Department of Aeronautical Engineering, Massachusetts Institute of Technology. The President's Airport Commission, given 90 days in which to make a report, came out with its recommendations May 16, 1952. (See Box.)

Encouraging to Note is the fact that a great many ALPA suggestions turned up in both the NATCC and PAC reports.

ALPA emphasized a long-demanded recommendation of the Association, that there should be zoning regulations in the vicinity of airports and that they should be controlled by the federal government.

ALPA asked that there be different airports for the use of civil and military aircraft.

"Noise Consideration," said ALPA, "should *not* be a primary factor—Safety, alone, should be the primary consideration."

And ALPA, through its President, said: *"The primary responsibility for the regulation of interstate air traffic should lie with the federal government . . . the regulation should be exclusively reserved to one agency—the federal government."*

Newark Airport was reopened June 16, 1952—but only for limited operations. The limitations, suggested by NATCC:

—No take-offs or landings over Elizabeth.

—No take-offs over the Hillside and Weequahic sections of Newark.

—No operations under any but VFR conditions.

—Approaches only from the northeast or east except when the wind requires landings from the west.

Newark is open but still remaining are vital issues—one of which is—Can municipalities legally regulate air traffic?

If they can, then air traffic regulation will always be subject to public whim and hysteria. A poll taken by NATCC indicates that 43 per cent of the people living near airports are *very much* annoyed by aircraft noise. Under present conditions, their power is enough to halt air transport operations —plainly aircraft which flash over hundreds of municipalities in an hour at 300 miles or more per hour cannot operate under regulations from a multiplicity of agencies.

Even now, another airport is being threatened with closure by a municipal law. On the books of Cedarhurst, N. Y., a city adjacent to New York International Airport, is a law banning flight over the village at less than 1,000 feet. The air above the village is necessary for turning, approaching and maneuvering by aircraft landing and taking off from all of the airport's runways. ALPA along with other interested groups has succeeded in an injunction temporarily restraining the village from enforcing the law.

The Effect Upon Pilots if states and municipalities should be allowed to exercise an authority over air traffic would be chaotic.

Among pilots' woes would be:

—Triple jeopardy. Pilots could be fined by the federal, state, and municipal governments for the breaking of a single regulation.

—Compromising of safety. Air traffic regulations could be drawn up by laymen whose prime object would be the reduction of noise. The pilots' operational knowledge would have little voice in drafting air traffic rules with noise reduction as the basic incentive. Trained technicians — aiming for air safety—would be forced to bow to laymen aiming for noise reduction.

—Pilots would be forced—under penalty of fine—to have a complete knowledge of air traffic rules set up by each individual municipality. For the pilot who daily crosses over hundreds of cities, an impossible task.

Obviously needed is full authority of the federal government to regulate air traffic.

Airways . . .

aircraft within 60 miles of the terminal.

The ASR will serve several purposes in addition to the obvious one of reducing collision hazards. It is used to guide or vector an aircraft to gateway positions where the Precision Radar can pick it up and the pilot can be talked down to a safe landing. It can be utilized to vector departing aircraft directly to their enroute airway, thus greatly reducing departure delays. It will be used to vector or monitor aircraft proceeding through the terminal area. The element of certainty introduced by Surveillance Radar will permit landings in more rapid succession than would be safe otherwise and will reduce delays caused by missed approaches.

The CAA Facility Implementation Program calls for the establishment of approximately 83 ASR units in the United States. At the present time 10 of these units are commissioned and in use and 43 additional units are being produced.

The Precision Approach Radar, the PAR, is considered a complementary facility to the ILS; whereas, the ILS requires that the aircraft be equipped with a specialized receiver, the operation of the PAR requires only simple two-way radio communication. Besides providing a partially equipped aircraft with a means of making an instrument approach to an airport in a congested terminal area, the PAR is used as a ground monitoring device for aircraft making an ILS approach. Used together, the ILS and PAR give the pilot and the control agency a continuous double check on the aircraft's position and constitute the safest and surest instrument landing method known to date.

Our Establishment Program calls for the installation of some 57 Precision Approach Radars in the United States; 10 of these are commissioned and in use today, and an additional 13 are under construction.

In order to assist the traffic controller in the identification of targets appearing on the ASR scope, the CAA is planning to use VHF/DF equipment in association with each ASR. The VHF/DF will provide the controller with a visual means of identifying the aircraft in voice contact with the controller. When the pilot opens his mike, a red radial line appears on the scope, bisecting the pip representing his aircraft. We plan on modifying this program so that the equipment will be capable of identifying military aircraft transmitting in the UHF band.

An Airborne Radar safety is being developed at the present time, and CAA is making the necessary plans for the modification of the ASR equipment so that the signal from the airborne beacon may be received by and displayed on the ASR scope. The radar safety beacon, besides providing a means of identifying a radar target, will greatly increase the range and usefulness of the ASR.

Development work has indicated that the existing Interlock system may be modified so as to integrate the interlock equipment operationally with radar control. These modifications will include the exchange of identity data and an automatic method of displaying the data transferred. Evaluation of existing equipment plus development work now going on at Indianapolis should give us a more useful equipment for simplifying the coordination between controllers and reducing communications between centers and towers.

Direct communications have been established, by CAA, between the air route traffic controllers and the pilot at many of the more important locations along the Federal Airways. Direct communication eliminates the possibility of misunderstanding and delays resulting from the use of a third party. Detailed procedures based on general standards pertaining to the operation of direct communications have been developed by the CAA and approved by the users of the airways.

The Aeronautical Communications System includes voice radio circuits for air-to-ground and ground-to-air communications and interphone and teletypewriter circuits for point-to-point communications. Air-to-ground and ground-to-air circuits will be handled through frequency bands ranging from "low" to "ultra high" depending, of course, upon the service invovled.

Due to the static interference characteristic of trasmissions in the lower portion of the spectrum, there is a healthy trend toward concentrating civil air/ground communications in the VHF band and military air/ground communications in the UHF band.

Communications may be between the airport traffic tower and the aircraft or between an interstate aeronautical communications station (INSACS) and the aircraft or directly between the air route of the aircraft and the nature of the intelligence to be exchanged.

Within the next two years we hope to commence the replacement of our 60 words per minute point to point teletypewriter equipment with 100 words per minute equipment. Services "A", "B", and "C" are networks composed of direct circuits and long-line circuits, which are interconnected by relays or through switching stations. The relay of meteorological data and Notices to Airmen is accomplished with automatic teletypewriter equipment and the data are relayed from circuit to circuit at scheduled periods.

The automatic relay provision permits the alerting of all stations throughout our system in a minimum time. Automatic sequencing equipment permits the preparation of a message prior to its transmission and the transmission is automatically made in proper sequence at the precise moment required on the network.

The Air Navigation Development Board is directing its efforts toward developing other electronic devices to assist the airways operations people in the scheduling and controlling of traffic along the airways and in the terminal areas. Today's operation is largely manual and burdens the controller with the tedious job of manually recording and posting flight information and acting as his own communicator while coordinating traffic. Development work is going forward on two aspects of the problem, first the improvement of the basic communications system to provide for a more flexible network of facilities and second to provide for some form of display of flight information data, Various types of devices will be evaluated on a traffic simulator and later tried out in an operating segment of the airways to determine the degree of usefulness attained. These devices have been given a variety of titles such as Airport Time Utilization Equipment, Traffic Delay Predictor, Air Traffic Coordinating Equipment, etc.

Another Part of the general program for the improvement of traffic control communications is the investigation going on to relieve the channel requirements for air/ground communications. Several techniques are being evaluated based on the automatic display of control instructions on a cockpit indicator and multiplexing a number of channels on one R/F carrier.

The development program for radar is primarily concerned with the improvement of radar displays and obtaining a more flexible and economical method of transmitting radar information than is now possible over coaxial cable. Present day radar displays are not well suited to continuous operations from the standpoint of brightness and retention of the traffic picture. Therefore, the search is going on for a more useful display tube to replace the standard radar display as we know it today.

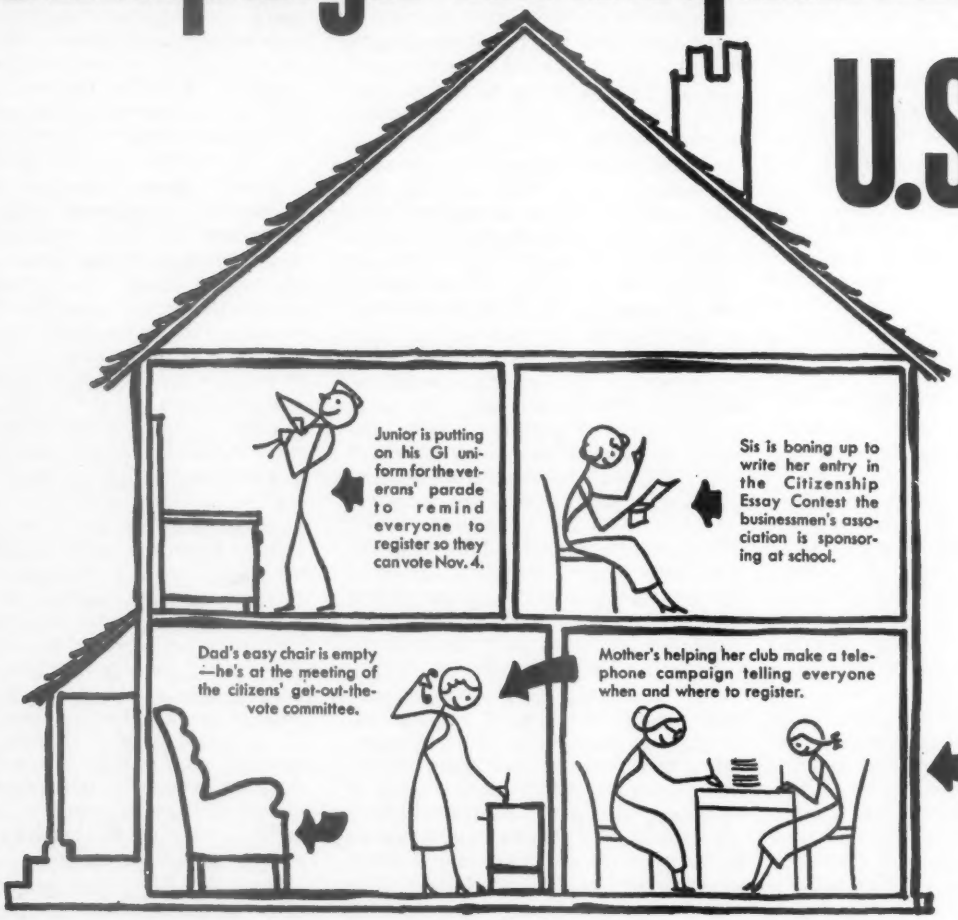
Radar displays are often remotely located from the radar equipment. At this time, we are sending the radar picture over conventional coaxial line and are consequently limited in the separation between radar and display. The use of booster amplifiers on the coaxial line would prove too costly, and so we are looking into the use of microwave or telephone circuits for this application. Elimination of distance bottleneck will permit us to exchange radar information or to coordinate the data between several radars to increase the area coverage.

There Are Many Problems remaining to be solved to bring the operation of the Federal Airways up to full efficiency. In general, we need improved communications poin-to-point on the ground and between the controller and pilot in the air, plus greater utilization of radar to realize the full benefits of our establishment program.

The Air Line Pilots Association, Air Transport Association, Aeronautical Radio, Inc., Aircraft Owners and Pilots Association, the United States Air Force, and United States Navy are working with various radio manufactures and agencies of Government in perfecting economical airborne Transition Program equipment.

It is the firm conviction of all students of the problem that the implementation of the Common System is aviation's big job today. I assure you that we in the Civil Aeronautics Administration will continue our efforts toward reaching the goal of the Common System and providing for safe and dependable all-weather flight.

Campaign Headquarters U.S.A.


Junior is putting on his GI uniform for the veterans' parade to remind everyone to register so they can vote Nov. 4.
Sis is boning up to write her entry in the Citizenship Essay Contest the businessmen's association is sponsoring at school.
Dad's easy chair is empty —he's at the meeting of the citizens' get-out-the-vote committee.
Mother's helping her club make a telephone campaign telling everyone when and where to register.
Grandma's sending registration reminders to all the church members. Even little Sis is helping — rubber-stamping messages on the cards.

The Family Vote will elect the Next President

NOT THE FARM VOTE...
THE BIG-CITY VOTE...
THE LABOR VOTE...
OR ANY PARTY VOTE...

Politicians talk a lot about this and that "bloc" of voters being decisive factors in this election. So do all the pollsters. You can't blame them for trying to dope it out that way in advance . . . but . . .

YOU know you're going to vote your own sweet way when you get behind that voting booth curtain—that where you live or work hasn't got a blankety-bloc thing to do with how you'll vote. You'll vote for what you believe to be in the best interests of your family—your kids —and your kids' kids.

So YOU know that this year—as always—it will be the FAMILY vote that really decides things. And families are working as never before to make sure every American votes. Right now in millions of American families, everyone from Little Sis to Grandma is pitching in to remind every eligible American to register to make sure of the opportunity to vote. And then they'll tackle the job of getting out the vote of every member of America's 44,000,000 families. They're the biggest "bloc" in America—they ARE America!

If your family is already working at the job—congratulations! If you aren't, talk it over at supper tonight, and pitch in tomorrow.